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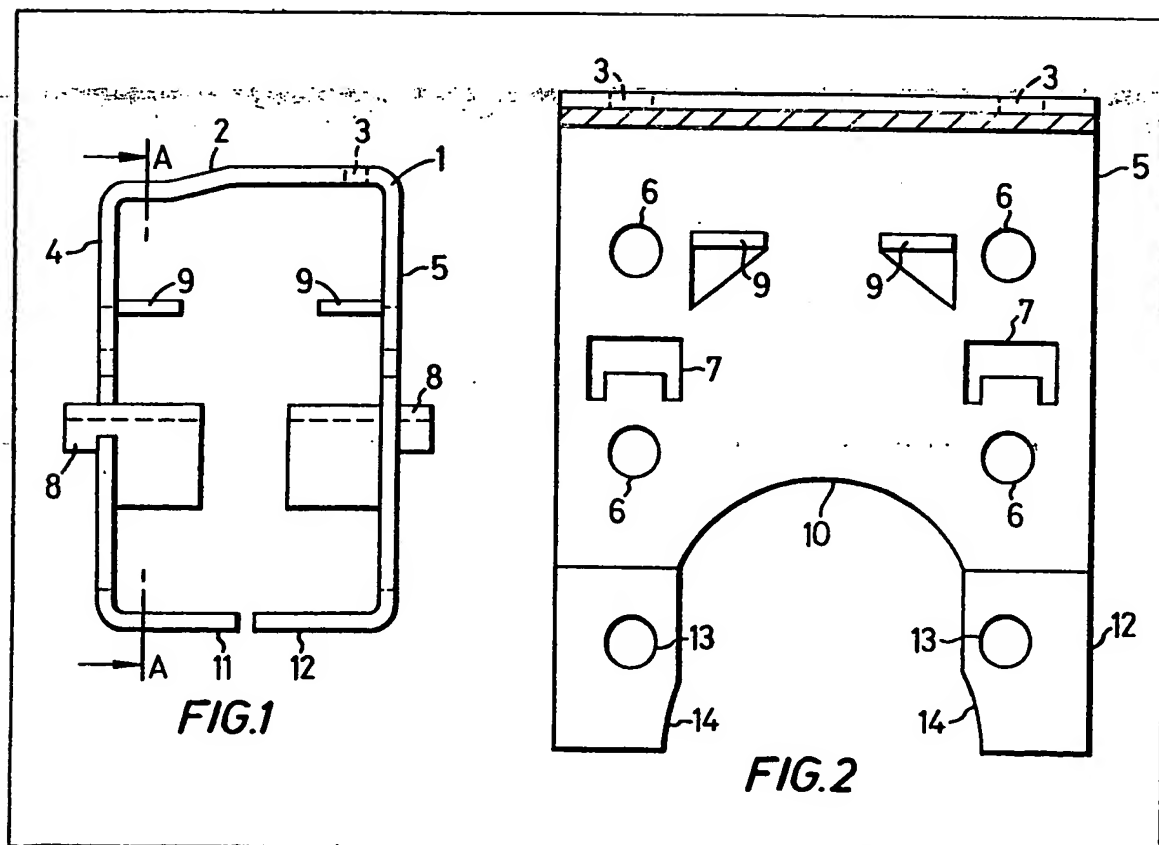
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(54) Support bracket

(57) A universal, U-shaped support bracket suitable for securing an object such as a differential pressure transmitter to a post in either a horizontal or vertical position, has a base portion 2 with bolt holes 3 for securing a valve manifold and the associated transmitter, and side walls 4, 5 with cut-outs 10 for abutting a post, the bracket being secured by bolts and a shoe (22, Fig. 4), the bolts cooperating with bolt brackets located in cut-outs 7. The side walls 4, 5 terminate in inwardly bent lugs 11, 12 which in the alternative mounting straddle the post, the side walls being drawn together by bolts in holes 6 to grip the post.



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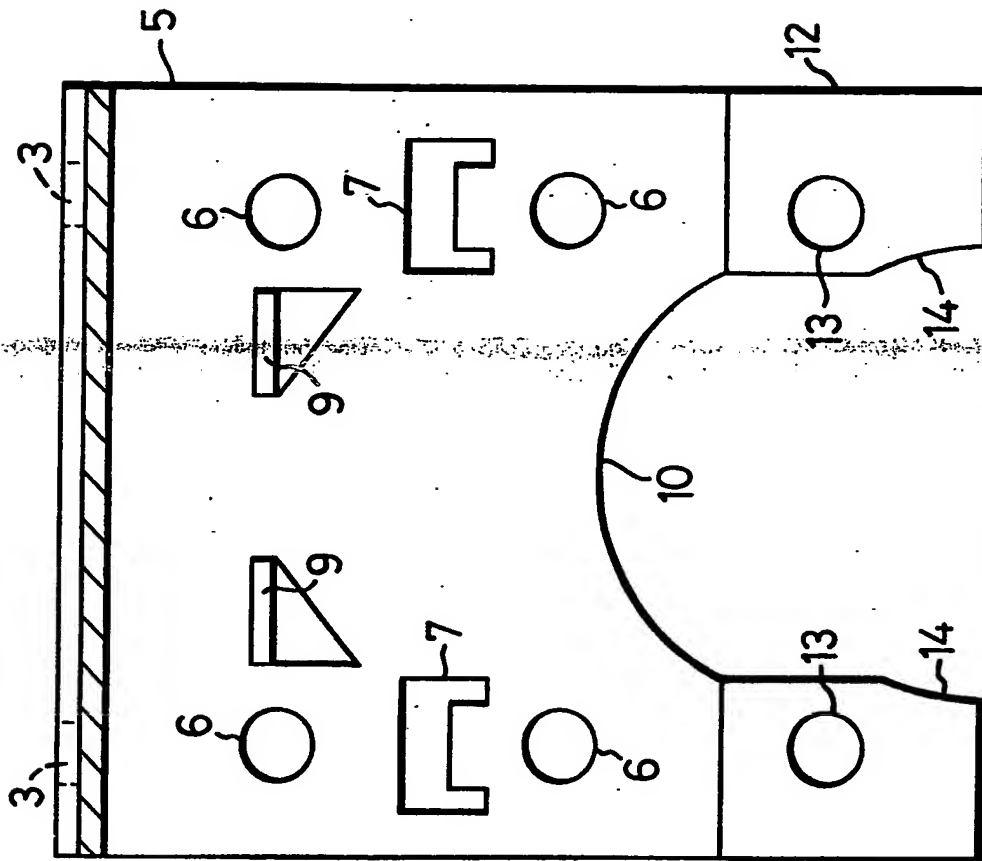


FIG. 2

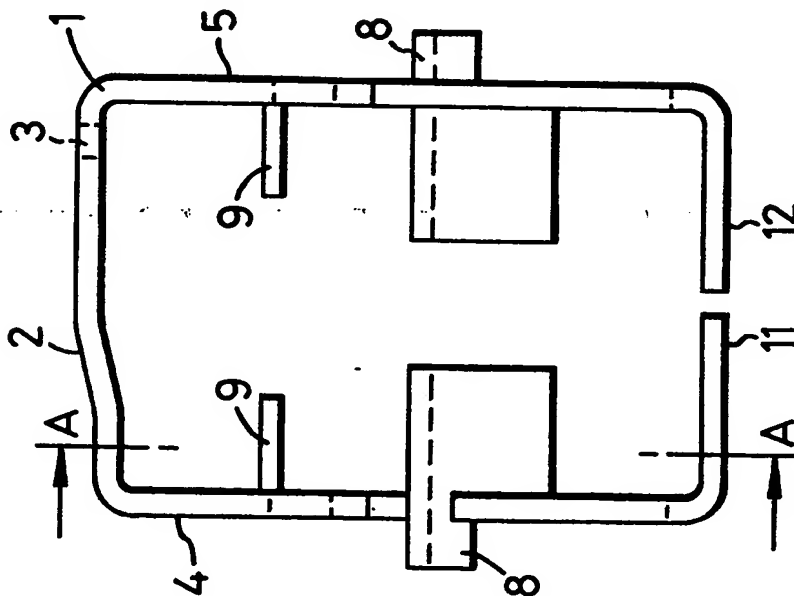


FIG. 1

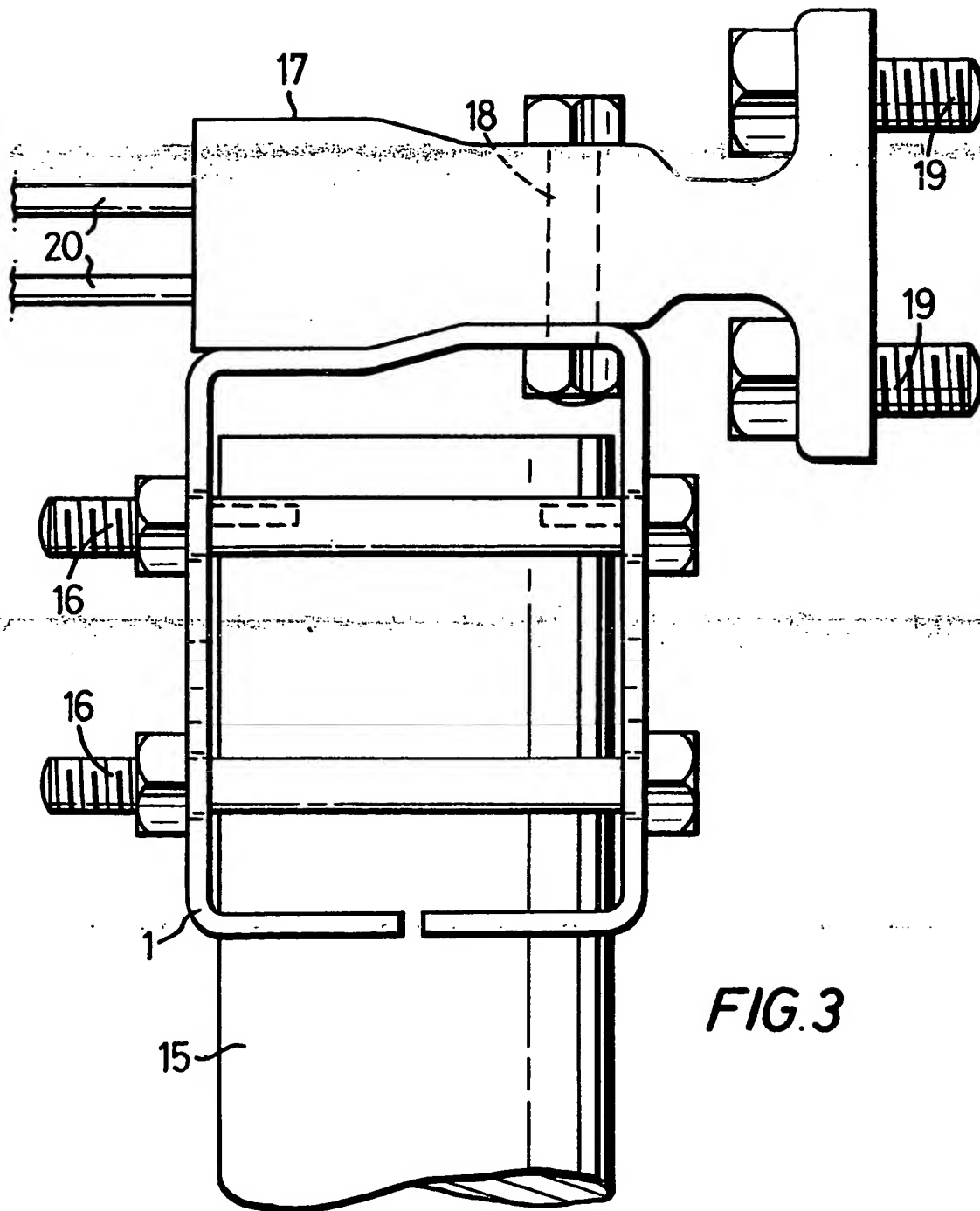


FIG. 3

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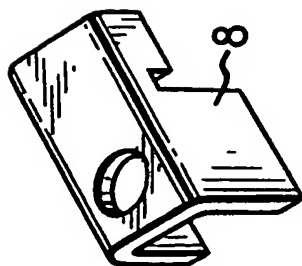


FIG. 5

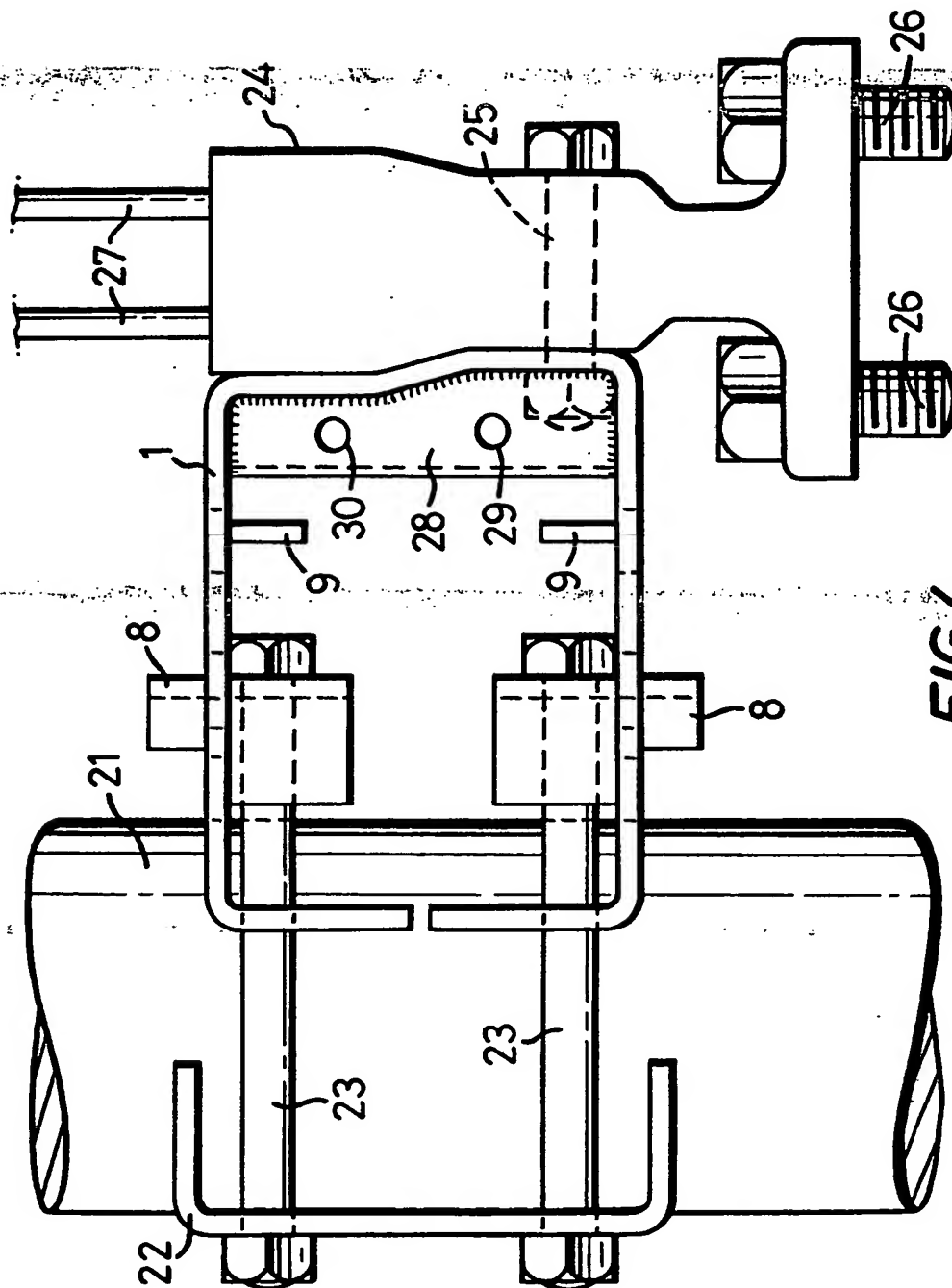


FIG. 4

SPECIFICATION **Support bracket**

This invention relates to a support bracket suitable for securing an object to a post or standpipe.

Instruments are frequently used for monitoring and controlling industrial processes such as those used in the petroleum refining and petrochemical industries, e.g. distillation, catalytic cracking and desulphurisation.

One particular type of instrument which has proved difficult to locate satisfactorily in the past is a differential pressure transmitter. This is usually connected to one side of a valve manifold and the process connections are made to the other side. The instrument is usually secured to a post, the manifold valve bolted to the instrument and the process connections fitted to the manifold. The assembly thus depends upon the instrument for the security of its mounting. If, for any reason, the instrument has to be removed, then the other items in the assembly are unsecured.

GB 2022397 A discloses a support structure for mounting a differential pressure transmitter, a valve manifold and their process piping on a pipe comprising an angle plate, fastening means for securing said angle plate to a pipe, fastening means for securing the valve manifold to said angle plate, and fastening means for removably securing the transmitter to said valve manifold so that said transmitter may be removed and installed without disturbing the mounting of said valve manifold to said angle plate.

This structure provides a solution to the above problem when it is possible to mount the valve manifold, the pressure transmitter and the process connections in a horizontal position.

However, some instruments are designed to be fitted vertically with vertical process connections and to date applicants are not aware of any previous bracket which is capable of mounting a valve manifold in either a horizontal or vertical position as desired.

It is an object of the present invention to provide a bracket, hereinafter termed a universal bracket, which will be capable of mounting an object in either a horizontal or vertical position as desired to a post.

Thus, according to the present invention there is provided a universal mounting bracket for mounting an object on a post which bracket comprises (a) a substantially U-shaped plate having a bottom section with means for securing the object thereto, two facing sidewalls capable of either surrounding the post or resting against it, (b) means for securing the bracket to the post when the bracket surrounds the post, and (c) means for securing the bracket to the post when the bracket rests against the post.

According to a further embodiment of the present invention there is provided a universal mounting bracket for mounting an object on a post which bracket comprises (a) a substantially U-shaped plate having a bottom section as herein

defined with means for securing the object thereto, two facing sidewalls capable of either surrounding the post or resting against it, (b) means for securing the bracket to the post when the bracket surrounds the post, (c) means for securing the bracket to the post when the bracket rests against the post, and (d) a chamber located in the space enclosed between the bottom section and the side walls, said chamber having an inlet port and an outlet port adapted to allow passage of fluids therethrough.

By "bottom section" as used herein and throughout the specification is meant either a substantially flat portion at right angles to the side walls or a shape to match the configuration of the valve manifold.

The U-shaped plate is preferably made by folding a single sheet of metal.

Preferably the plate also comprises two sections facing the bottom section, one at the end of each sidewall, adapted to surround the post.

Preferably the bracket is intended for use with a cylindrical post.

In this case the means for securing the bracket when the bracket surrounds the post will comprise aligned holes in each sidewall which permit the entry of retaining bolts.

In order to locate the bracket around the post and to prevent the sidewalls from deforming when the retaining bolts are secured, the sidewalls preferably comprise ribs. The ribs are preferably triangular in section and prepared by cutting slots in the sidewalls and folding back the appropriate sections.

The facing sections at the end of each sidewall are preferably contoured to fit snugly around the post.

The means for securing the universal bracket to the post when the bracket rests against the post preferably comprises a secondary U-bracket adapted for location on the other side of the post from the universal bracket, which can be bolted to the universal bracket.

The ends of the sidewalls which rest on the post are preferably contoured to allow the universal bracket to fit around the post to some extent when resting on it.

In a preferred embodiment a chamber provided with an inlet port and an outlet port is enclosed in the space defined by the bottom section and the sidewalls. The chamber may be integral with or detachable from the universal bracket. It is preferably welded to the bottom section. The function of the chamber is to enable the valve manifold to be heated, if necessary, especially when the instrument is installed in a low temperature environment.

The heating is suitably carried out by passing steam through the inlet port and out of the outlet port. The steam heats the bracket and thereby the valve manifold. Instead of steam any other type of hot fluid or heating means may be used.

The invention is illustrated with reference to Figs. 1 to 5 of the accompanying drawings wherein Fig. 1 is a schematic side elevation of the

universal mounting bracket, Fig. 2 is an end elevation of Fig. 1 along the section A—A, Fig. 3 shows the bracket mounted on a vertical post so as to surround the post for horizontal connections, Fig. 4 shows the bracket mounted on a vertical post for vertical connections together with the optional integral chamber, and Fig. 5 is a detail of a detachable bolt bracket.

With reference to Figs. 1 and 2, the bracket 1 (represented in an inverted mode) is formed from a steel plate bent into an approximately rectangular configuration with a slight irregularity in the bottom section 2 to match the configuration of a valve manifold. The bottom section contains two bolt holes 3.

The facing sidewalls 4 and 5 each contain four aligned bolt holes 6, two apertures 7 for detachable bolt brackets 8 and two triangular sections which are folded back to form locating ribs 9. The upper ends of the sidewalls are provided with curved inserts 10 to permit them to rest upon a cylindrical post.

The facing sections 11 and 12 of the bracket at the end of each side wall 4 and 5 respectively are shown in their correct configurations in Fig. 1 but in Fig. 2 for ease of representation section 12 is shown unfolded. They contain two bolt holes 13 and also possess curved sections 14 adapted to fit around a cylindrical post.

In Fig. 3 the universal bracket 1 is fitted around a vertical cylindrical post 15. It is secured by four bolts 16 passing through the bolt holes 6. A valve manifold 17 is secured horizontally to the bracket 1 by two bolts 18 (one through each of the bolt holes 3 but only one of which appears in the plane of the drawing) passing through the bolt holes 3.

An instrument such as a differential pressure transmitter, not shown, is secured alongside the valve manifold 17 by bolts 19 and horizontal process connections are made by lines 20.

In Fig. 4 the universal bracket 1 rests against a vertical cylindrical post 21. It is secured to the post by means of a U-bracket 22 and bolts 23 passing through the U-bracket 22, bolt holes 13 and detachable bolt brackets 8. A valve manifold 24 is secured vertically to the bracket 1 by two bolts 25 (one through each of the bolt holes 3 but only one of which appears in the plane of the drawing) passing through the bolt holes 3. An instrument such as a differential pressure transmitter, not shown, is secured beneath the valve manifold 24 by bolts 26 and vertical process connections are made by lines 27. A chamber 28 is welded to the bottom section 2, side walls 4 and 5. The chamber has ports 29 and 30 to allow passage of a heated fluid such as steam so as to heat the valve manifold, if necessary.

CLAIMS

1. A universal mounting bracket for mounting

60 an object to a post which bracket comprises (a) a substantially U-shaped plate having a bottom section as herein defined with means for securing the object thereto, two facing sidewalls capable of either surrounding the post or resting against it, (b) means for securing the bracket to the post when the bracket surrounds the post, and (c) means for securing the bracket to the post when the bracket rests against the post.

2. A universal mounting bracket for mounting 70 an object to a post which bracket comprises (a) a substantially U-shaped plate having a bottom section as herein defined with means for securing the object thereto, two facing sidewalls capable of either surrounding the post or resting against it, (b) means for securing the bracket to the post when the bracket surrounds the post, (c) means for securing the bracket to the post when the bracket rests against the post, and (d) a chamber located in the space enclosed by the bottom section and the sidewalls, said chamber having an inlet port and an outlet port adapted to allow passage of fluids therethrough.

3. A universal mounting bracket according to claim 1 or 2 wherein the U-shaped plate is made 85 by folding a single sheet of metal.

4. A universal mounting bracket according to any one of the preceding claims wherein the plate also comprises two sections facing the bottom section, one at the end of each sidewall, adapted 90 to surround the post.

5. A universal mounting bracket according to any one of the preceding claims wherein the means for securing the bracket when the bracket surrounds the post comprises aligned holes in 95 each sidewall which permit the entry of retaining bolts.

6. A universal mounting bracket according to claim 5 wherein the sidewalls comprise ribs to locate the bracket around the post and to prevent 100 the sidewalls from deforming when the retaining bolts are secured.

7. A universal mounting bracket according to any one of the preceding claims 1—4 wherein the means for securing the universal bracket to the post when the bracket rests against the post 105 comprises a secondary U-bracket which can be bolted to the universal bracket and is adapted for location on the other side of the post from the universal bracket.

8. A universal mounting bracket according to any one of the preceding claims 2 to 7 wherein a chamber with an inlet port and an outlet port is provided in the space defined by the bottom section and the sidewalls, integral with or 110 detachable from the universal bracket.

9. A universal mounting bracket substantially as described herein with reference to the accompanying drawings.

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